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ABSTRACT

This report describes a project undertaken with students in grades 5 through 7 in the Toms River (New Jersey) Regional School District to develop a technique for integrating microcomputers and VCRs (videocassette recorders). Following an overview of the program, a brief review of research on technology in the classroom is presented along with a graph of computer and video trends in public schools from 1982 to 1987. The program description includes a list of project goals and objectives, steps and a diagram for connecting computer and video equipment, a sample lesson sequence, and a summary of the research project lessons. Fourteen suggestions are made for projects and appropriate software: (1) video storybooks; (2) video plays; (3) video comic books; (4) video slide shows; (5) graphic screens; (6) character generators; (7) digitizing; (8) documentaries and presentations; (9) demonstration lessons and tutorials; (10) news programs; (11) music videos; (12) advertisements and announcements; (13) video pen pals; and (14) video greeting cards. Data from pre/posttests of vocabulary, pre/posttests of computer-video connections, a student opinion survey, and a teacher opinion survey are presented. Based on this evaluation data, it is concluded that students are capable of using computer and video equipment together and that students and teachers found the project a positive learning experience. (16 references) (MES)

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INTEGRATING COMPUTERS WITH VIDEO CASSETTE RECORDERS

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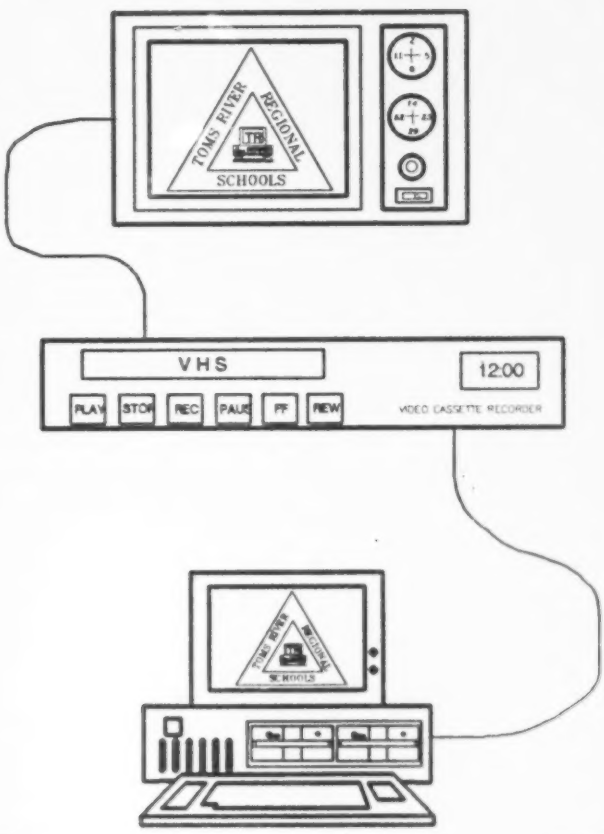

PROGRAM DESCRIPTION

By Glenn Anderson
Toms River Regional Schools

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New Jersey Governor's Teacher Grant Program - 1987
New Jersey State Department of Education

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Student and teacher materials for
Integrating Computers with Video Cassette Recorders
are available from the Toms River Regional School District.

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Integrating Computers with Video Cassette Recorders

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STATE OF NEW JERSEY
DEPARTMENT OF EDUCATION
CN 500
TRENTON NJ 08625 0500

OFFICE OF THE COMMISSIONER

Commissioner's Statement

Colleagues are frequently cited by teachers as a rich source of new ideas and effective methods that become incorporated into their own instructional practices. Recognizing the potential benefits of such sharing, Governor Thomas H. Kean established the Governor's Teacher Grant Program in 1985. Governor's Teacher Grants provide selected teachers with funds to prepare materials that will enable their instructional practices to be shared with others.

Now, with the conclusion of the first group of grants which were awarded in 1986, these teacher developed materials have been completed. In making these programs available to educators throughout the state, we give recognition to the important contribution that teachers make to school improvement. We are indeed grateful to those dedicated teachers selected as 1987 Governor's Teacher Grant recipients.

Saul Cooperman
Commissioner

SC/JB/RS/dm:2/3211G

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INTEGRATING COMPUTERS WITH VIDEO CASSETTE RECORDERS

A PROJECT OF THE NEW JERSEY GOVERNOR'S TEACHER GRANT PROGRAM 1987-89

PROGRAM OVERVIEW

Abstract:

Many schools in New Jersey and other states spent millions of dollars in the last few years to purchase computers and video cassette recorders. This equipment is often underutilized. To promote educational use of the technology, a technique has been developed that integrates microcomputers and video cassette recorders in a new and exciting way.

Using the computer to generate graphics and text, the output is captured with a video cassette recorder in the creation of such projects as video storybooks, news reports, documentaries, computer software tutorials, and other presentations. The final product may include music and voice-dubbed narrations. Professional-looking videos can be generated easily by elementary school students using the techniques described in this project.

THE PROJECT

Today when educators hear about computer and video products most often the topic relates to CD-I, CD-V, DVI, CD-ROM, or other optical disk technology. There is definitely a place for those items now and in the future of education. However, as the research indicates, schools already have installed other technology that is being used but holds untapped potential. This project was undertaken to train educators in how to fully utilize the microcomputers and video cassette recorders that already exist in schools today by integrating the technologies to create computer-generated videotapes.

Twenty classes from a large suburban school district, Toms River, NJ, were included in the research project. The students were in grades five through seven. However, the techniques discussed in this Program Description apply to a wide range of age groups.

The major goals of the project were to increase student and teacher awareness of the possibilities that exist for using computers in conjunction with video cassette recorders, and to increase the computer literacy of the students by increasing their computer vocabulary.

The most apparent outcome of the project was the creation of twenty videotape productions. Each classroom tape was duplicated to circulate among the students. In addition, many schools were able to simultaneously show the tapes to every class in a building through their closed-circuit television capability. As the culmination of the project, these tapes were aired on the school district television station which broadcasts to the surrounding communities. This allowed the students not only to view their creation within their classroom, but at home on television, as well.

It was extremely gratifying to see the children so proud of their class projects. Imagine the enthusiasm that was generated when the children were able to view their computer work on videotape and hear the narration of their story dubbed in with background music.

By broadcasting the tapes on the district TV station, students were able to view not only the work of their own class, but of all the other classes taking part in the project. The motivation increased with each successive class. The anticipatory set for one class was established by the viewing of other class projects on television.

A video tape describing the research project, including samples of student work, has been prepared with an accompanying teacher manual. The tape and manual are available through the Toms River Regional School District.

SUMMARY OF THE RESEARCH FINDINGS

In recent years school systems have equipped themselves with computer and video technology.

According to Quality Education Data (QED), a Denver-based market research group, the number of public schools with microcomputers has increased from 30,859 during the 1982/83 school year to 76,241 during the 1986/87 year. Now approximately 94 percent of all public schools use microcomputers. The number of schools with VCRs has also increased from 25,663 during the 1982/83 year to 70,037 during the 1986/87 year. Approximately 86 percent of all public schools are equipped with video equipment (Electronic Education, 1987). See graph next page.

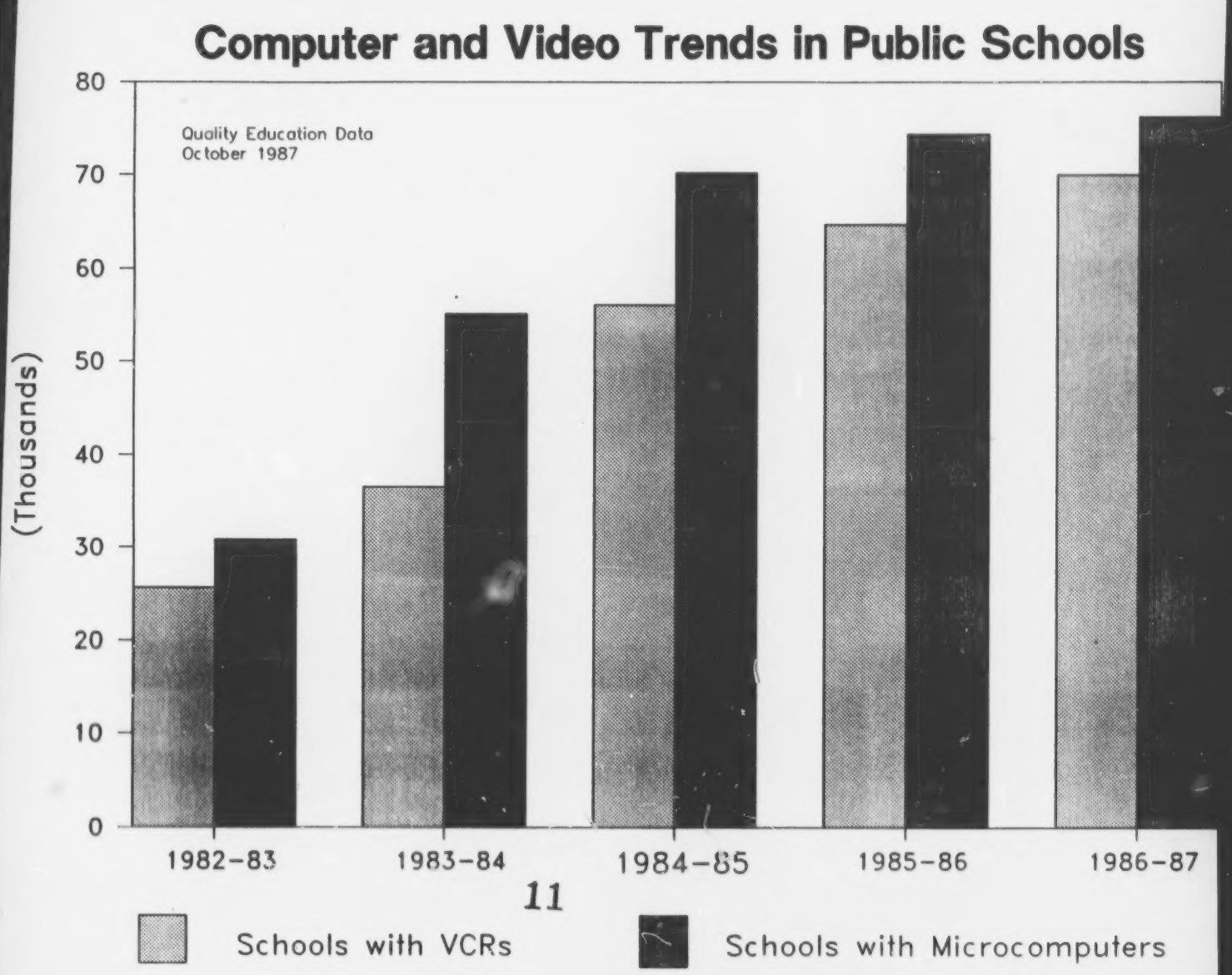
Approximately 285,00 personal computers were sold for classroom use in the United States last year for kindergarten through twelfth grade (Education Computer News, 1987). Sales of computers for classroom use are expected to total approximately $1.6 billion in 1987 (Education Computer News, 1987).

New Jersey is experiencing a similar rate of growth in technology in its schools. According to Educational Technology in New Jersey: A Plan for Action (May 1986), between 1983-84 and 1984-85, the number of computers used in New Jersey classrooms more than doubled. By 1983 three-fourths of all schools had one or more video cassette recorders available compared with just one-third of all schools in 1977 (Corporation for Public Broadcasting, 1976-77, 1982-83).

Some school districts offer in-service training, and training for using computers in the classroom is available from colleges and universities in addition to state centers. Video cassette recorders are easy to use and many teachers have their own (Carlisle, 1987). However, the majority of computer-using educators are still in need of training and effective instructional uses of new technologies.

Research on the effects of using computers as a tool is minimal (Educational Technology in New Jersey: A Plan for Action, May 1986). Some articles have been published dealing with the linking of computer screens together, and a few have been written about the technique of connecting a computer to a video cassette recorder. However, no work has been published covering the range of possibilities for the integration of computer and video technology in an educational setting.

This project, The Integration of Computer and Video Technology, has been developed in recognition of the large base of computer and video equipment installed, the need for training and the lack of information concerning the merging of the technologies in a motivational and meaningful manner.


Computer and Video Trends in Public Schools
Quality Education Data
October 1987
(Thousands)
80
70
60
50
40
30
20
10
0
1982-83
1983-84
1984-85
1985-86
1986-87
Schools with VCRs
Schools with Microcomputers

GOALS AND OBJECTIVES

GOALS

I. Students will increase their competency in targeted aspects of computer literacy.

II. Students will develop a positive attitude toward the integration of computer technology into their classroom.

III. Teachers will develop a positive attitude toward the integration of computer technology into their classroom.

OBJECTIVES

I. Students will increase their competency in targeted aspects of computer literacy.

A. Students will correctly identify a glossary of terms.

B. Students will correctly complete a diagram illustrating safe and proper connections of computer and video equipment.

C. Students will successfully complete a project using a computer.

D. Students will be able to transfer their project to video tape.

E. Students will be able to enhance the appearance of their project with the addition of other computer graphics and credits.

F. Students will be able to add sound to their projects by audio dubbing.

II. Students will develop a positive attitude toward the integration of computer technology into their classroom.

A. By sharing a copy of the video tape project, students will be able to share their experience.

B. Utilizing the television studio within the school district, student work will be aired on the local cable television station so the students can see their work at home.

C. Using an attitudinal survey, students will express their feelings concerning the program.

III. Teachers will develop a positive attitude toward the integrating of computer technology into their classroom.

Using an attitudinal survey teachers will express their opinions about the technique utilized for their class project.

CONNECTING COMPUTER AND VIDEO EQUIPMENT

A computer typically sends a signal to the monitor. To record the output from the computer on a VCR, the VCR has to be connected between the computer and the monitor. To accomplish this, one must follow these simple steps.

1. Although no harmful current is being emitted from these connections, it is best to make the connections with the power off to all the equipment.

2. Take the connector (RCA plug) that is coming from the computer to the monitor and disconnect the monitor end.

3. Put the connector into the VCR where it is marked VIDEO IN.

4. If you have a television connected to your VCR, you can turn on the equipment, set the VCR/TV switch to VCR and you will see the computer output as soon as you power up the computer.

5. If you would like to also see the output on your monitor, you will need an RCA cable with male connectors at both ends. Plug one end into the VCR marked VIDEO OUT and plug the other end into the monitor where it will be marked either VIDEO IN or simply VIDEO. If you do not have an extra cable for the connection, you can purchase one for under five dollars at almost any retail store that sells electronics. You may have to ask for phono jacks. Be sure it has pins (male connectors) at both ends. However, beware of telling a sales person what you are doing with the cord. Most will give you a look as to question your planetary origins. So don't bother explaining your purpose for the cord.

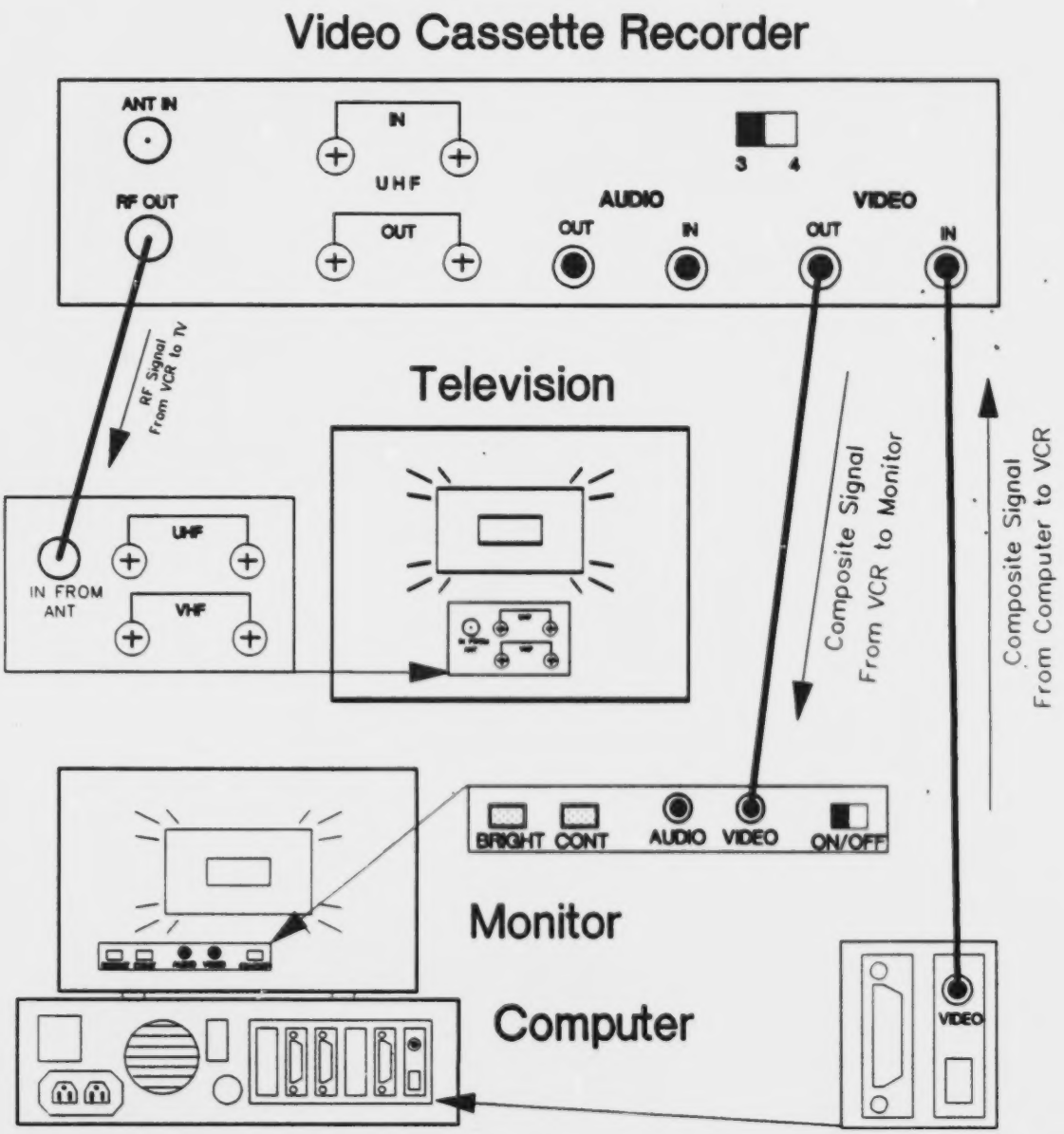
6. To record the computer output, place a blank tape (or one you do not mind erasing) in the VCR and follow the directions in your VCR manual for recording video. This usually entails either pressing the RECORD button alone, or pressing PLAY and RECORD together.

If your computer has a separate audio output plug, you can also record audio to videotape by connecting the audio plug to the AUDIO IN on the VCR. The output will be heard through your television. If your monitor has an AUDIO IN, connect it to the AUDIO OUT on the VCR using RCA type connectors.

Another way to record sound to the tape is by audio dubbing the sound after the tape is complete. This gives a smooth flow to a finished narration (See Notes on Audio Dubbing.). However, not all VCRs have this feature.

CONNECTING A COMPUTER TO A VIDEO CASSETTE RECORDER

The diagram illustrates how to connect a computer to a video cassette recorder and view the output on a monitor and a television. The signal is being generated by the computer. By taking the monitor cable and placing it in the port marked VIDEO IN, the signal is channeled to the VCR. If your VCR is connected to a television, you should see your computer signal on your TV. You can also see the signal on your monitor. Take another monitor cable and connect the VIDEO OUT on the VCR to the VIDEO port on your monitor.



LESSON SEQUENCE

To complete most of the suggested projects, it is necessary to instruct a series of lessons. Some of the lessons are optional depending on the purpose of the activity selected. The sample sequence is based on a class project activity which is the major thrust of this grant.

Lesson 1 Pretest Glossary and Connections Chart

This lesson is optional, but was necessary in the evaluation of the effectiveness of the grant project. In actual practice, these specific areas of evaluation may not be as critical as the successful completion of the group project video tape on which the actual evaluation would be based.

Lesson 2 Introduction of the Targeted Computer Program

Here the instructor presents a lesson to the intended group in the use of the computer program selected. At this time the goals and objectives of the project are defined for the class, and some of the terminology specific to the project is introduced.

This lesson can be judged on its own merit. However, the outcome growth derived from each specific program was too diverse for this grant project to measure and is not the focal point of the research.

Lesson 3 Connecting Computer and Video Equipment

The lesson is presented upon completion of all the programming to be included in the project. In demonstrating the proper connection of the devices, the vocabulary is either introduced or reinforced.

The necessary connections can be introduced during the actual taping if time is a constraint, but the lesson is best when presented on its own.

Lesson 4 Taping the Project

Depending on the age and experience of the students, the actual taping can be done by them or as guided by the instructor. The process is actually quite simple and essentially involves loading the computer screen to be taped and activating the VCR to record the screen, pausing the recorder while loading another screen, and activating the VCR again to tape the next screen until all the screens have been taped.

Lesson 5 Audio Dubbing

An optional lesson for adding a sound track to the video tape. Typically, the activity involves the students reading necessary narration to the project with some background music to add a professional ambiance to the project.

Lesson 6 Posttesting the Glossary and the Connections Chart

As stated in Lesson 1, this particular aspect of the project is optional based on your intended goals and objectives.

For more detailed lesson plans see the Teacher Manual for this project.

SUMMARY OF THE RESEARCH PROJECT LESSONS

First, each class was tested and then instructed on computer literacy vocabulary and how to connect computer and video equipment. A lesson was presented instructing the class in the operation of the computer program they would be using for their project. Class member were then responsible for creating their contribution to the project. Typically, this was a creative writing activity. After proofreading, the students would transfer their ideas to the computer.

When all the students had their computer stories saved on a disk, the stories were ready to be transferred to video tape. Remember, the computer signal must simply be routed through the VCR.

Each student loaded his work from the disk. The image was displayed on the monitor and taped on the VCR. The process of transferring all of the computer work to tape is uncomplicated and can be done by the students once instructed. After the video track was finished, the class would audio dub their voices and music to the video tape.

Upon completion of the project, the class was tested and surveyed on the activity. The results of the test can be found in this Program Description.

When each class was finished, they watched their production. Each class was also given a copy of the tape to be circulated among the class members for viewing at home. In addition, each of the project tapes was aired on the school district television station which broadcasts to the local community. So the students were able to see their projects at home and were able to see the work of other classes who participated in the project.

PROJECT IDEAS

Video Storybooks

One of the major thrusts of this project is the creation of computer-generated video storybooks. Primarily utilizing integrated graphic and text computer programs to create each screen, you can record and link multiple screens in a flowing sequence. Many projects of this type can be enhanced with voice and music dubbing.

Some suggested programs that work best for this idea are: *Kidwriter, Just Imagine, Movie Creator, Bank Street Storybook,* and *Logo Writer.*

Video Plays

Similar to video storybooks, some programs lend themselves well to the creations of plays with actors, scenes, backgrounds, and sometimes even animation. Often these programs were designed to have multiple screens linked together making recording easier because you will not have to pause the recording.

Some suggested programs that work best for this idea are: *Take1, Show Director,* and *Show Time.*

Video Comic Books

Similar to video storybooks and plays, video comic books are more caption oriented and generally use familiar characters. Created in the same manner as a video storybook, these single or multiscreen vignettes can be recorded together in a flowing pattern.

Some suggested programs that work best for this idea are: *Create With Garfield* and *Walt Disney Comic Strip Maker.*

Video Slide Shows

As with the three ideas above, the computer is simply being used to link a number of computer screens into one flowing finished product. Video slide shows help you display graphics either high or low resolution without having to load each of them separately. This is a great vehicle for the teacher to link individual student graphics together for a class project. The screens typically contain little or no text instead they are judged for their aesthetic appeal.

Some suggested programs that work best for this idea are: *Slide Shop, VCR Companion, Koala Pad, Animation Station, Dazzle Draw, Paintworks, Blazing Paddles, Pixit, The Art Studio, Doodle, Flexidraw, Graphics Magician, Home Video Producer* and *Logo.*

Graphic Screens

Used as introductions, segues, or just general attention getters, some computer programs offer a wide range of graphic capabilities. As is the case with other graphic programs, the computer-generated screen can not be superimposed, but is utilized as a stand-alone message. Graphic programs vary in their ability to draw and paint, and some can integrate text into the graphic screen. Be careful not to use a screen that is too busy. If you are using text, the characters should not be too small or overpowered by the graphics.

Unlike the video slide show, the graphic screen technique is usually employed as a stand alone image in another video.

The suggested programs would be the same as the ones for video slide show.

Character Generators

Some computer programs can be utilized for generating credits, titling, and labeling screens. Used whenever appropriate to the subject matter, some very professional effects can be created with this technique. This technique works well with most of the other computer-generated output and additionally with camera-input video. One drawback to this method is the computer screen can not be superimposed on existing video as is the case with true character generators. This is a minor flaw for most video work on this scale and is quite in keeping with the spirit of this project and the targeted level of technology.

Some suggested programs that work best for this idea are: *Print Shop, Slide Shop, VCR Companion, Home Video Producer, Micro Ads, PC Storyboard, Beagle Screens,* and *Fantavision.*

Digitizing

Technology now allows for input by the scanning of text and graphic images from the printed pages. As the research indicates, this is not the case with the majority of schools today. However, schools can still avail themselves of the technology by using a low-cost digitizer. Simply, a camera-input video image can be translated to digital format to be captured and displayed by microcomputer equipment. The sophistication level of the low-cost digitizers lend themselves to images with as little detail as possible. Portraits with a white background work well. An added feature is that many of the graphics programs that interface with the digitizing hardware allow for printed copy of your screens. In fact, using heat transfer ribbon, the image can be ironed on a T- shirt.

Some suggested programs that work best with this idea are: *Computer Eyes Digitizer*, for Apple, IBM, and Commodore, and the accompanying software which includes integration of other graphic programs. Also available is AST's *Vision Plus* digitizer for the Apple.

Any of the following projects without specific software suggestions listed have a number of possible programs that work well depending on the project, its application, and audience.

Documentaries and Presentations

When making use of video equipment to create documentaries and reports it is easy to integrate computer-generated screens to enhance organization and appeal of the presentation. When doing student reports, add credits and/or titles to the video. It will connote a more sophisticated and professional ambiance to the viewer.

For "Back to School Night", why not videotape the activities of the day? Add some titles screens and all the student names from the class with a graphics program, and show the parents what actually happens during the day rather than discuss the abstract?

Demonstration Lessons and Tutorials

When introducing a computer program, put a sample lesson on video tape. The explanation of the program works best when audio dubbed, but can be taped in real time or actually narrated at the time of presentation. If a program needs to be introduced to a number of classes periodically or annually, this technique can save time and promote continuity. The tape can be shown ahead of your scheduled presentation as a promotion or first exposure. At times one's schedule does not always permit the presentation of lessons to all interested parties. Sending a tape can serve as a substitute. If a student is absent for the introduction of a program, a loaned copy of the tape could be useful. A taped presentation can make use of large screen televisions which can be viewed by a whole group.

News Programs

To foster the growth of budding journalists, students can put together a news program. The scope and content would, of course, be determined by an advisor or in conjunction with the student reporters. To add visual appeal to the program computer-generated titles and graphics could be utilized. For example, the titles could be generated with *Beagle Screens*, the credits generated with *Print Shop*, and a student's report enhanced with *Easy Graph*.

Music Videos

Take advantage of the student interest in this category of presentation. Either mix computer and camera video or use just computer output. Interesting visual effects can be created with many of the graphic programs, including digitizing, producing some interesting effects. Computer animation can be dubbed with up beat music to produce programs the students will enjoy a great deal.

Advertisements and Announcements

Some computer programs have the ability to scroll text and graphics on the screen. These programs can be taped as they perform their operations. As commercial studios use message boards, a VCR and television can be placed in a secure but visible area to display your announcements. Recording the same message a number of times would allow the system to run continuously for a long period of time. Programs such as these can also run by themselves so you could choose between using the computer or taping the output for display using a VCR.

Programs of this nature make excellent text generators for use in titling and labeling other projects.

Some suggested programs that work best with this idea are *Video Title Shop, Home Video Producer, Slide Shop, VCR Companion,* and *Fantavision.*

Video Pen Pals

Create tapes of your class and your computer work. Then send the tape to a class in some distant location. It is suggested here a prior arrangement should be made with the receiving class. However, if you are willing to take a chance, make a number of duplicate copies of your tape and send them to various locations with an introductory letter. *Some foreign countries use a different video signal.

Video Greeting Cards

In this activity each student would bring in a video tape. The students would then create some holiday graphics and/or story for to be transferred to tape. A computer Mother's Day, Father's Day, Valentine's Day or Christmas card on video tape makes for a novel gift and an interesting learning experience. Don't forget to gift wrap the tape!

A Vehicle for Sharing with the Home

Often students create a computer project at school, but have no means of sharing that idea with parents and friends. Applying the techniques in this project, any computer work can be displayed at home using video tape. Not all, but many homes have video cassette recorders and players at home. Instead of a student bringing just the printed output or program instructions home on paper, taping the program would allow others to see the flow of the program regardless of computer compatibility or even if there is no computer in the home.

All of the projects mentioned in this section make an excellent method for viewing student work and enhancing the bond between home and school.

EVALUATION

Integrating Computer and Video Technology
A Project of the Governor's Teacher Grant Program 1987

Researcher: Mr. Glenn Anderson
Toms River Regional Schools

The effectiveness of the program was based on four evaluative instruments, a pre/posttest of glossary specific to the project, a diagram of safe and proper connections of computer and video equipment, a student opinion survey, and a teacher opinion survey.

Twenty classes participated in the project with 508 students involved in the evaluation. The population sample consisted of fifth- through seventh-grade students with a predominant number of fifth grade classes taking part in the project. The classes were selected randomly from a suburban school district of 16,000 students having eleven elementary, two intermediate, three high schools, and one alternate high school. The sites chosen represent a typical sampling of the elementary and intermediate school population.

The evaluative instruments are included with the teacher manual for this project.

CONCLUSIONS

1. **Students are capable of learning to use computer and video equipment together.**

Judging from the results of the pre/posttest of glossary tests and the diagram of connections, it can be concluded that students between the ages of 10 and 14 can learn the vernacular specific to the technology and correctly connect computer and video equipment. (See graphs and charts on the following pages.) Further evidence to support this claim is the successful completion of 20 video productions, one from each class involved in the project.

2. **Students and their teachers believed the project was an enjoyable, effective, and positive learning experience.**

After the completion of each project, each of the students was asked to complete an attitudinal survey to determine how the students perceived the project. The teacher of each class completed a separate form. In both surveys, a significant number of respondees believed the experience was a positive one. Compilation of the results support this conclusion. (See Student and Teacher Survey Results.)

PRE/POSTTEST SCORES FOR DIAGRAM TEST

Class	Pretest	Posttest	Total in Class	% Increase
1	0	15	26	57.69
2	0	16	24	66.67
3	0	24	26	92.31
4	0	14	14	100.00
5	0	20	24	83.33
6	0	18	25	72.00
7	0	20	25	80.00
8	0	22	26	84.62
9	0	20	26	76.92
10	0	19	25	76.00
11	0	22	25	88.00
12	0	22	26	84.62
13	0	21	25	84.00
14	0	24	24	100.00
15	0	23	28	82.14
16	0	22	26	84.62
17	0	23	27	85.19
18	0	20	28	71.43
19	0	24	28	85.71
20	0	22	30	73.33
Total	**0**	**411**	**508**	**80.91%**

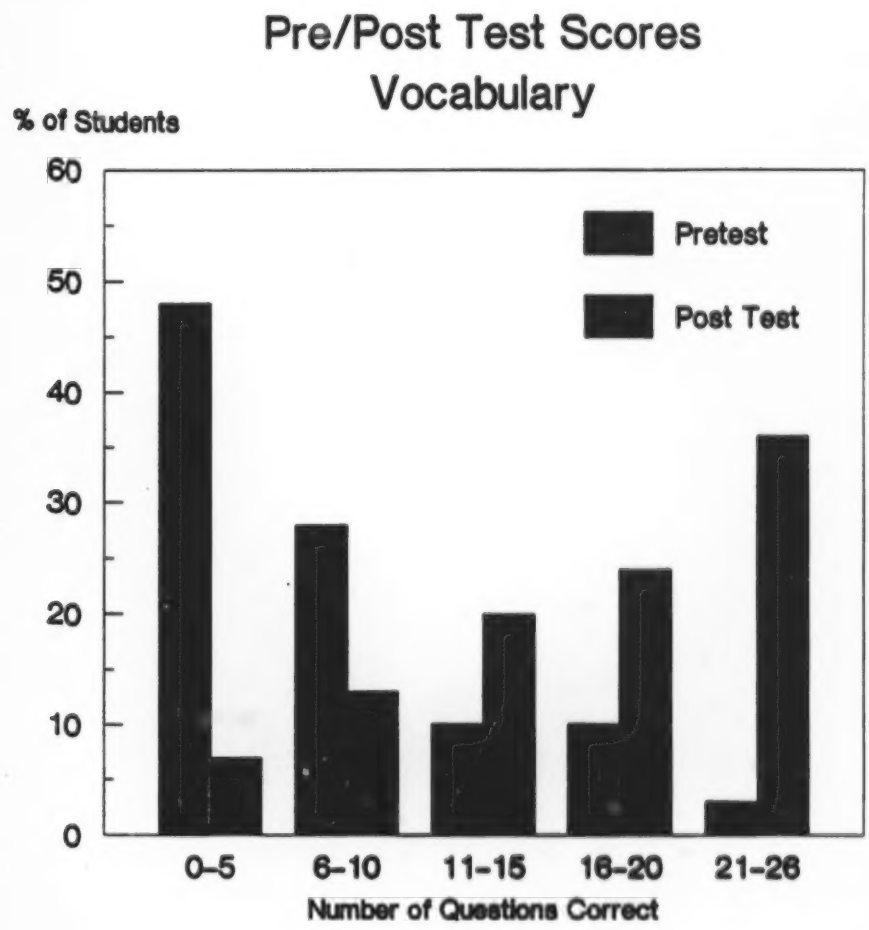
RESULTS

0 Students successfully completed the diagram on the pretest.

411 Students successfully completed the diagram on the posttest.

508 Total number of students who took the test.

80.91% Increase in the posttest scores.



The list below contains the 26 glossary items tested.

audio dubbing	composite video	data
deferred mode	delete	disk drive
floppy disk	graphics software	graphics tablet
hard copy	hardware	immediate mode
input	monitor	output
pixel process	program	radio frequency
retrieve	software	sprite
word wrap	word processor	digitize

The mean student score for the pretest was 7.37. The mean posttest score was 16.89, an increase of 11.52 in the mean test score.

The median score for the pretest was 6.2 and 17.5 for the posttest, an increase of 11.3 questions. The increase in the median from the pretest to the posttest was 43.5% for the glossary test items.

STUDENT SURVEY RESULTS

1. What is your overall opinion about the project?
   - 60% Like it very much
   - 38% Like it
   - 1% Not sure
   - 1% Dislike it
   - 0% Dislike it very much

2. How good do you think this project was in teaching your class about computers?
   - 51% Very effective
   - 42% Effective
   - 7% Not sure
   - 0% Ineffective
   - 0% Very ineffective

3. Would you like to do a project such as this again?
   - 61% Definitely would
   - 35% Probably would
   - 4% Not sure
   - 1% Probably would not
   - 0% Definitely would not

4. As a result of this project do you feel your knowledge has
   - 54% Definitely increased
   - 37% Increased somewhat
   - 7% Not sure
   - 2% Increased little
   - 0% Not increased at all

5. Would you do a project like this one at home?
   - 33% Definitely would
   - 34% Probably would
   - 21% Not sure
   - 9% Probably would not
   - 3% Definitely would not

6. Did your family see your class project?
   - 83% Yes
   - 13% No
   - 4% Don't know

If your answer to question 6 is yes, did your family see
   - 6% the extra tape
   - 33% the tape on television
   - 51% both

* All percentages have been rounded to the nearest whole number.

TEACHER SURVEY RESULTS

1. What is your overall opinion of the project?

90% Like it very much
10% Like it
0% Not sure
0% Disklike it
0% Dislike it very much

2. How would you rate its effectiveness in helping students understand computer and video technology?

90% Very effective
10% Effective
0% Not sure
0% Ineffective
0% Very ineffective

3. Would you do this project again in the future?

80% Definitely would
20% Probably would
0% Not sure
0% Probably would not
0% Definitely would not

4. As a result of this project, do you feel your own knowledge has _____ .

95% Definitely increased
5% Increased somewhat
0% Not sure
0% Increased little
0% Not increased at all

5. Would you recommend a project such as this to other teachers?

95% Definitely would
5% Probably would
0% Not sure
0% Probably would not
0% Definitely would not

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